

**What is claimed is:**

1           1. A method for use in a cable modem assigned to employ a primary downstream  
2 channel, the method comprising the steps of:  
3           storing an indication of an alternative downstream channel;  
4           detecting that said primary downstream channel has become invalid; and  
5           switching to employ said alternative downstream channel in lieu of said primary  
6 downstream channel whereby reinitialization of said cable modem is not required.

1           2. The invention as defined in claim 1 further comprising the step of:  
2           receiving via said alternative downstream channel an upstream channel descriptor;  
3           and  
4           switching to use for upstream communication a frequency and modulation scheme  
5 indicated by said upstream channel descriptor.

1           3. The invention as defined in claim 1 further comprising the step of:  
2           storing, prior to said detecting step, an upstream channel identifier;  
3           receiving, via said alternative downstream channel, an upstream channel  
4 descriptor; and  
5           switching to use for upstream communication a frequency and modulation scheme  
6 indicated as a function of said upstream channel descriptor and said upstream channel  
7 identifier.

1           4. The invention as defined in claim 1 wherein said cable modem had a particular  
2 Internet Protocol (IP) address, a transmit power level, and a configuration file when  
3 communicating via said primary downstream channel and wherein said cable modem  
4 uses said particular Internet Protocol (IP) address, said transmit power level, and said  
5 configuration file when initially communicating via said alternative downstream channel.

1           5. The invention as defined in claim 1 further comprising the steps of:  
2           ranging and registering with a cable modem terminating system (CMTS)  
3 supplying said alternative downstream channel prior to performing said detecting and  
4 switching steps.

1           6. The invention as defined in claim 1 further comprising the steps of:  
2           storing at least one parameter established during initialization of said primary  
3 downstream channel with a first cable modem terminating system (CMTS); and  
4           transmitting said parameter by said cable modem to a second CMTS on said  
5 alternative downstream channel.

1           7. The invention as defined in claim 6 wherein said at least one parameter is  
2 transmitted by said cable modem to said second CMTS prior to detecting in said  
3 detecting step that said primary downstream channel has become invalid.

1           8. The invention as defined in claim 6 wherein said at least one parameter is  
2 transmitted by said cable modem to said second CMTS after to detecting in said detecting  
3 step that said primary downstream channel has become invalid.

1           9. A cable modem assigned to employ a primary downstream channel,  
2 comprising:  
3           a memory for storing an indication of an alternative downstream channel;  
4           a tunable receiver; and  
5           a processor for detecting that said primary downstream channel has become  
6 invalid and instructing said tuner to tune to said alternative downstream channel in lieu of  
7 said primary downstream channel whereby reinitialization of said cable modem is not  
8 required.

1           10. The invention as defined in claim 9 wherein said cable modem further  
2 comprises:  
3           a tunable transmitter;  
4           wherein said memory further stores an upstream channel descriptor and said  
5 processor instructs said transmitter to use for upstream communication a frequency and  
6 modulation scheme indicated by said upstream channel descriptor after detection that said  
7 primary downstream channel has become invalid.

1           11. A cable modem assigned to employ a primary downstream channel,  
2 comprising:

3           means for storing an indication of an alternative downstream channel;

4           means for detecting that said primary downstream channel has become invalid;

5 and

6           means for switching to employ said alternative downstream channel in lieu of said  
7 primary downstream channel whereby reinitialization of said cable modem is not  
8 required.

1           12. The invention as defined in claim 11 further comprising:

2           means for receiving via said alternative downstream channel an upstream channel  
3 descriptor; and

4           means for switching to use for upstream communication a frequency and  
5 modulation scheme indicated by said upstream channel descriptor.

1           13. The invention as defined in claim 11 further comprising:

2           means for storing, prior to said detecting step, an upstream channel identifier;

3           means for receiving, via said alternative downstream channel, an upstream  
4 channel descriptor; and

5           means for switching to use for upstream communication a frequency and  
6 modulation scheme indicated as a function of said upstream channel descriptor and said  
7 upstream channel identifier.

1           14. The invention as defined in claim 11 wherein said cable modem had a  
2 particular Internet Protocol (IP) address, a transmit power level, and a configuration file  
3 when communicating via said primary downstream channel and wherein said cable  
4 modem uses said particular Internet Protocol (IP) address, said transmit power level, and  
5 said configuration file when initially communicating via said alternative downstream  
6 channel.

1           15. The invention as defined in claim 11 further comprising:  
2           means for ranging and registering with a cable modem terminating system  
3 (CMTS) supplying said alternative downstream channel prior to detection by said means  
4 for detecting that said primary downstream channel has become invalid.

1           16. The invention as defined in claim 11 further comprising:  
2           means for storing at least one parameter established during initialization of said  
3 primary downstream channel with a first cable modem terminating system (CMTS); and  
4           means for transmitting said parameter by said cable modem to a second CMTS on  
5 said alternative downstream channel.

1           17. The invention as defined in claim 16 wherein said at least one parameter is  
2 transmitted by said cable modem to said second CMTS prior to detecting by said  
3 detecting means that said primary downstream channel has become invalid.

1           18. The invention as defined in claim 16 wherein said at least one parameter is  
2 transmitted by said cable modem to said second CMTS after to detecting by said  
3 detecting means that said primary downstream channel has become invalid.

1           19. A cable modem, comprising:  
2           a first memory location storing an indication of a first channel to be used by said  
3 cable modem as its primary downstream channel; and  
4           a second memory location storing an indication of a second channel to be used by  
5 said cable modem as its alternative downstream channel.

1           20. The invention as defined in claim 19 wherein said cable modem further  
2 comprises:  
3           a third memory location storing at least one parameter determined during an  
4 initialization process of said cable modem in conjunction with a cable modem  
5 terminating system (CMTS) supplying said alternative downstream channel, said  
6 initialization process being performed prior to said primary downstream channel  
7 becoming invalid.

1           21. The invention as defined in claim 19 wherein said cable modem further  
2 comprises:

3           a third memory location storing at least one parameter determined during an  
4 initialization process of said cable modem in conjunction with a cable modem  
5 terminating system (CMTS) supplying said primary downstream channel.

1           22. The invention as defined in claim 21 wherein said cable modem further  
2 comprises:

3           a transmitter for transmitting said at least parameter to a second CMTS supplying  
4 said alternative downstream channel.

1           23. The invention as defined in claim 19 wherein said cable modem further  
2 comprises:

3           a detector that determines that said primary downstream channel is invalid; and  
4           a frequency adjustable receiver tuner that changes from said first channel to said  
5 second channel when said detector determines that primary downstream channel is  
6 invalid.

1           24. The invention as defined in claim 23 wherein said cable modem further  
2 comprises:

3           a frequency adjustable transmitter tuner that tunes to a new upstream channel in  
4 response a received upstream channel message.

1           25. The invention as defined in claim 23 wherein said cable modem further  
2 comprises:

3           a third memory location storing an upstream channel identifier received via said  
4 primary downstream channel; and

5           a frequency adjustable transmitter tuner that tunes to a new upstream channel in  
6 response a received upstream channel message as a function of said stored upstream  
7 channel identifier.

1           26. A cable modem system comprising at least one cable modem and a plurality  
2 of cable modem terminating systems, said cable modem system being characterized in  
3 that when detection of a failure of at least one of said cable modem terminating systems is  
4 made by said cable modem, then said cable modem begins communicating with another  
5 of said cable modem terminating systems, whereby a reinitialization of said cable modem  
6 is not required.

1           27. A first cable modem terminating system (CMTS), comprising:  
2 means for receiving as an input at least one parameter for cable modem service  
3 provided between a cable modem and a second CMTS which is initially serving said  
4 cable modem, said at least one parameter being established during initialization of said  
5 cable modem service between said cable modem and said second CMTS; and  
6 means for establishing cable modem service between said first CMTS and said  
7 cable modem using said at least one parameter.

1           28. The invention as defined in claim 27 wherein said at least one parameter is  
2 one from the group consisting of: a configuration file, a security association, DOCSIS  
3 version, concatenation support, payload header suppression, and multicasting support.

1           29. The invention as defined in claim 27 wherein said at least one parameter is  
2 supplied from said second CMTS.

1           30. The invention as defined in claim 29 wherein said at least one parameter is  
2 supplied prior to a downstream channel between said second CMTS and said cable  
3 modem becoming invalid.

1           31. The invention as defined in claim 27 wherein said at least one parameter is  
2 supplied from said cable modem.

1           32. The invention as defined in claim 31 wherein said at least one parameter is  
2 supplied after failure of said second CMTS.

1           33. The invention as defined in claim 31 wherein said at least one parameter is  
2 supplied prior to failure of said second CMTS.

1           34. The invention as defined in claim 31 wherein said at least one parameter is  
2 supplied over a channel different than the channel by which said cable modem was  
3 communicating with said second CMTS.

1           35. A method for use in a first cable modem terminating system (CMTS), the  
2 method comprising the steps of:

3           receiving as an input at least one parameter for cable modem service provided  
4 between a cable modem and a second CMTS which is initially serving said cable modem,  
5 said at least one parameter being established during initialization of said cable modem  
6 service between said cable modem and said second CMTS; and

7           establishing cable modem service between said first CMTS and said cable modem  
8 using said at least one parameter.

9           36. The invention as defined in claim 35 wherein said at least one parameter is  
10 one from the group consisting of: a configuration file, a security association, DOCSIS  
11 version, concatenation support, payload header suppression, and multicasting support.

12           37. The invention as defined in claim 35 wherein said at least one parameter is  
13 supplied from said second CMTS.

14           38. The invention as defined in claim 35 wherein said at least one parameter is  
15 supplied after failure of said second CMTS.

16           39. The invention as defined in claim 35 wherein said at least one parameter is  
17 supplied prior to failure of said second CMTS.

18           40. The invention as defined in claim 35 wherein said at least one parameter is  
19 supplied over a channel different than the channel by which said cable modem was  
20 communicating with said second CMTS.

1           41. A first cable modem terminating system (CMTS), comprising:  
2           a memory for storing at least one parameter received by said cable modem as an  
3 input for cable modem service provided between a cable modem and a second CMTS  
4 which is initially serving said cable modem, said at least one parameter being established  
5 during initialization of said cable modem service between said cable modem and said  
6 second CMTS; and  
7           a processor for operating said first CMTS to establish cable modem service  
8 between said first CMTS and said cable modem using said at least one parameter.

9           42. The invention as defined in claim 41 further comprising an input port to  
10 receive said at least one parameter which is supplied via said second CMTS.

11           43. The invention as defined in claim 41 further comprising a receiver which  
12 receive said at least one parameter which is supplied from said cable modem.

1           44. Software stored in a computer readable medium for use in a first cable modem  
2 terminating system (CMTS), for causing a processor within said first CMTS to operate  
3 said CMTS to perform the actions comprising:

4           receive at least one parameter for cable modem service provided between a cable  
5 modem and a second CMTS which is initially serving said cable modem, said at least one  
6 parameter being established during initialization of said cable modem service between  
7 said cable modem and said second CMTS; and

8           establish cable modem service between said first CMTS and said cable modem  
9 using said at least one parameter.



1           45. Software stored in a computer readable medium for use in a first cable modem  
2 terminating system (CMTS), for causing a processor within said first CMTS to operate  
3 said CMTS to perform the actions comprising:

4           perform an initialization with a cable modem which is being served by a second  
5 CMTS receive so as to store for future use at least one parameter for cable modem service  
6 in the event a primary downstream channel provided by said first CMTS for said cable  
7 modem becomes invalid; and

8           establish cable modem service between said first CMTS and said cable modem  
9 using said at least one parameter after said primary downstream channel provided by said  
10 first CMTS for said cable modem becomes invalid.